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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,546	07/11/2003	Nathan S. Lewis	06618-892002	5173

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EXAMINER	
SHAH, KAMINI S	

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,546	LEWIS ET AL.	
	Examiner	Art Unit	
	Kamini S Shah	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 55-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24,55-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments, see amendment, filed 09/24/04, with respect to the rejection(s)of claim(s) 1-24 and 55-59 under Non-statutory Double Patenting over U.S. Patent No. 6,631,333. Applicants respectfully have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Keller and Mitrovics.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 11-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller, P; Kangas, L; Linden, L; Hashem; S; Kouzes, R; "ELECTRONIC NOSES AND THEIR APPLICATIONS"; IEEE Technical Applications Conference and

Workshops Northcon 95; 1995; pp 116 (Hereafter referred to as Keller) in view of Mitrovics, J; Ulmer, H; Noetzel, G; Weimar, U; Gopel, W;"HYBRID MODULAR SENSOR SYSTEMS: A NEW GENERATION OF ELECTRONIC NOSES"; Proceedings of the IEEE International Symposium on Industrial Electronics; Volume 1; 1997: SS116SS121 (hereafter referred to as Mitrovics).

Regarding to claims 1, 11 and 12, Keller teaches: A sensor array system for characterization of a gas or vapor sample (e.g.; Page 116, Abstract, lines 3-7); at least one sensor which provides a detectable signal when contacted by an analyte (e.g.; Page 116, Introduction, ¶ 1, lines 10-12); A measuring apparatus in communication with at least one sensor providing a detectable signal when contacted by an analyte (e.g.; Page 117, Prototype Electronic Nose, ¶ 1, lines 1-15). However, Keller does not fully teach a transmitting data corresponding to the detectable signal to a remote location, and analyzing data received at the remote location. Mitrovics teaches a transmitting device in communication with the measuring apparatus transmitting information, corresponding to an analyte detectable signal, to a remote location (e.g.; Page SS116, ¶ II, System Overview, lines 1-19 ; Figures 1 and 2). It would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Keller of a sensor array system for characterization of a gas or vapor sample with the teaching of Mitrovics of a transmitting device in communication with the measuring apparatus transmitting information, corresponding to an analyte detectable signal, to a remote location because a transmitting device in communication with the

measuring apparatus transmitting information to a remote location would have enhanced worker safety and increased system flexibility and application.

Regarding claim 2, Keller teaches at least one sensor is a plurality of sensors (e.g., Page 116, Introduction, ¶ 1, lines 3-10).

Regarding claim 3, Keller teaches a tin oxide sensor as seen in figure 3.

Regarding claim 11, Keller teaches a data is a digital profile representative of the detectable signal, (e.g.; Page 117, Prototype Electronic Nose, ¶ 1, lines 8-12).

Regarding claim 13-24, Keller teaches, a sample is an environmental sample (e.g.; Page 118, Electronic Noses for Environmental Monitoring, ¶ 2, lines1-7); an environmental sample is an air sample (e.g., Page 117, Prototype Electronic Nose, ¶ 4, lines 8-12); a sample is a biological sample (e.g.,- Page 118, Electronic Noses for Medicine, ¶ 1); a biological sample is selected from the group consisting of a breath sample, a urine sample, a vaginal sample, a feces sample, a tissue sample and a blood sample in regard to claims 16-17(e.g.; Page 118, Electronic Noses for Medicine, ¶ 1); a biological sample is a breath sample in regard to claim 18(e.g., Page 118, Electronic Noses for Medicine, ¶ 1); data is analyzed by comparing the data to a database comprising a data profile from at least one previously-obtained detectable signal from a sample of known composition in regard to claim 19 (e.g.; Page 117, Prototype Electronic Nose, ¶ 3, lines 1-12); an analyte in the sample is identified by matching the data to the data profile of a known composition in the database in regard to claim 20 (e.g.-, Page 116, Introduction, ¶ 1, lines 10-16); data is analyzed by comparing the data to a database containing data profiles from a plurality of detectable signals in regard to

claim 21 (e.g.-, Page 116, Introduction, ¶ 1, lines 10-16); each data profile in the database is associated with at least one identifier in regard to claim 22 (e.g., Page 118, Prototype Electronic Nose, ¶ 5, lines 2-6; Table 2); at least one identifier is selected from the group consisting of location, time, age, sex, disease state, temperature, sample source, sample type, organism, and ethnicity in regard to claim 23 (e.g., Page 118, Prototype Electronic Nose, ¶ 5, lines 2-6; Table 2); an analyte is identified by a best match data to a data profile in the database and identifying any identifier associated with the data profile in regard to claim 24 (e.g., Page 118, Prototype Electronic Nose, ¶ 5, lines 2-6; Table 2).

5. Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller in view of Mitrovics as applied to claims 25-28 and 35-54 in paragraph 2 and further in view of Nagle, H; Gutierrez-Osuna, R; Schiffman, S;"THE HOW AND WHY OF ELECTRONIC NOSES"; IEEE Spectrum; Volume 35 Issue 9; 1998; pp 22-31 (Hereafter referred to as Nagle).

The teachings of Keller and Mitrovics have been previously presented in paragraph 4. The combination of Keller and Mitrovics does not fully teach an electrically conductive sensor comprises regions of a conductive material and a conductive material compositionally different than the conductive material, wherein the sensor provides an electrical path through the regions of the conductive material and the regions of the compositionally different material, and wherein the conductivity changes upon adsorption with the analyte; at least one region of compositionally different material of one sensor is a different thickness than the region of compositionally different material

of at least one other sensor; compositionally different material is selected from the group consisting of polyanilines, an emeraldine salt of polyanilines, polypyrroles, polythiophenes, polyEDOTs, and their derivatives; conductive material is carbon black, Ag, Au, Pd, Cu, Ni, AuCu, or Pt and a sensor comprises an insulator or plasticizer. However, Nagle teaches an electrically conductive sensor comprises regions of a conductive material and a conductive material compositionally different than the conductive material, wherein the sensor provides an electrical path through the regions of the conductive material and the regions of the compositionally different material, and wherein the conductivity changes upon adsorption with the analyte in (e.g.; Page 25, ¶ IV, Starring the array, lines 46-84; Figure 3); At least one region of compositionally different material of one sensor is a different thickness than the region of compositionally different material of at least one other sensor (e.g.; Page 25, ¶ IV, Starring the array, lines 46-84; Figure 3); Compositionally different material is selected from the group consisting of polyanilines, an emeraldine salt of polyanilines, polypyrroles, polythiophenes, polyEDOTs, and their derivatives (e.g.; Page 25, ¶ IV, Starring the array, lines 46-84; Figures 2 and 3); Conductive material is carbon black, Ag, Au, , Pd, Cu, Ni, AuCu, or Pt (e.g.; Page 25, T IV, Starring the array, lines 12-14; Figures 2 and 3); Sensor comprises an insulator or plasticizer (e.g., Page 27; Figure 5). It would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Keller of a sensor array system for characterization of a gas or vapor sample and at least one sensor is an electrically conductive sensor and the teaching of Mitrovics of a transmitting device in communication with the measuring

apparatus transmitting information, corresponding to an analyte detectable signal, to a remote location with the teaching of Nagle of an electrically conductive sensor comprising regions of a conductive material and a conductive material compositionally different than the conductive material, the sensor providing an electrical path through the regions of the conductive material and the regions of the compositionally different material, and the conductivity changes upon adsorption with the analyte, because such a sensor would have been sensitive to a greater variety of chemical analytes, did not require heaters and were easier to manufacture.

6. Claims 55--59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller in view of Mitrovics and further in view of Nagle, H; Gutierrez-Osuna, R; Schiffman, S;"THE HOW AND WHY OF ELECTRONIC NOSES"; IEEE Spectrum; Volume 35 Issue 9; 1998; pp 22-31 (Hereafter referred to as Nagle).

Keller teaches: A sensor array system for characterization of a gas or vapor sample (e.g.; Page 116, Abstract, lines 3-7);

at least one sensor which provides a detectable signal when contacted by an analyte (e.g.; Page 116, Introduction, ¶ 1, lines 10-12); A measuring apparatus in communication with at least one sensor providing a detectable signal when contacted by an analyte (e.g.; Page 117, Prototype Electronic Nose, ¶ 1, lines 1-15).

However, Keller does not fully teach a transmitting data corresponding to the detectable signal to a remote location, and analyzing data received at the remote location.

Mitrovics teaches a transmitting device in communication with the measuring apparatus

transmitting information, corresponding to an analyte detectable signal, to a remote location (e.g.; Page SS116, ¶ II, System Overview, lines 1-19 ; Figures 1 and 2).

The combination of Keller and Mitrovics does not fully teach an electrically conductive sensor comprises regions of a conductive material and a conductive material compositionally different than the conductive material, wherein the sensor provides an electrical path through the regions of the conductive material and the regions of the compositionally different material, and wherein the conductivity changes upon adsorption with the analyte; at least one region of compositionally different material of one sensor is a different thickness than the region of compositionally different material of at least one other sensor.

However, Nagle teaches an electrically conductive sensor comprises regions of a conductive material and a conductive material compositionally different than the conductive material, wherein the sensor provides an electrical path through the regions of the conductive material and the regions of the compositionally different material, and wherein the conductivity changes upon adsorption with the analyte in (e.g.; Page 25, ¶ IV, Starring the array, lines 46-84; Figure 3).

It would have been obvious to one skilled in the art at the time of the instant invention to modify the teaching of Keller of a sensor array system for characterization of a gas or vapor sample and at least one sensor is an electrically conductive sensor and the teaching of Mitrovics of a transmitting device in communication with the measuring apparatus transmitting information, corresponding to an analyte detectable signal, to a remote location with the teaching of Nagle of an electrically conductive sensor

comprising regions of a conductive material and a conductive material compositionally different than the conductive material, the sensor providing an electrical path through the regions of the conductive material and the regions of the compositionally different material, and the conductivity changes upon adsorption with the analyte, because such a sensor would have been sensitive to a greater variety of chemical analytes, did not require heaters and were easier to manufacture.

Regarding claim 56, Nagle does not fully disclose the characterizing the disease. However, it would have been obvious to one of the ordinary skill in the art for "the biological nose" that have been used in variety of applications including characterizing the symptoms of disease such as a health care, environmental monitoring from the orders since they are well suited for comparing final products to reference standards, see page 30, A manifold appeal ¶ 3, lines 6-11.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kamini S Shah whose telephone number is 571-272-2279. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack B Harvey can be reached on 571-272-3896. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kamini S Shah
Primary Examiner
Art Unit 2142

kss